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[54]	ELECTRIC SHAVER WITH REDUCED VIBRATION			
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[56]	References Cited			
U.S. PATENT DOCUMENTS				

FOREIGN PATENT DOCUMENTS

3/1975 Wellinger 30/43.92

9/1991 Kawara et al. 30/44 X

1/1977	Germany.
5/1982	Germany.
6/1984	Germany .
4/1987	Germany.
5/1978	Japan .
2/1980	Japan .
	5/1982 6/1984 4/1987 5/1978

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ABSTRACT

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An electric shaver according to the present invention is provided with an inner blade vibrating table connected to a motor for vibrating inner blades, and a balance weight capable of being vibrated in the direction parallel with the direction of vibration of the inner blade vibrating table. The balance weight is connected to the motor through a reverse vibrating mechanism which is vibrated in the direction reverse to the direction of vibration of the inner blade vibrating table. The motor vibrates, through the vibrating mechanism and the reverse vibrating mechanism, the inner blade vibrating table and the balance weight in the reverse directions with respect to each other, and thereby the vibration of the electric shaver can be reduced by the balance weight.

14 Claims, 12 Drawing Sheets

